

What is, according to Peirce, the method of science? Is it the only way to fix belief?

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Abstract

In this paper, I explore Peirce's claim that the method of science is the only way to permanently fix, or settle belief. Peirce considers four different methods of forming beliefs: The method of tenacity, the method of authority, the a priori method, and the method of science. Peirce argues that the first three methods of forming beliefs cannot fix belief because they are inconsistent with what Peirce calls the hypothesis of reality - the hypothesis that there is an external world independent of human opinion. Peirce argues that methods that are inconsistent with this hypothesis form beliefs that are subject to doubt, and cannot therefore fix belief. The method of science is however consistent with the hypothesis of reality and therefore can fix belief.

I argue that Peirce is correct that the method of science is the only way to fix belief if one accepts the pragmatist theory of belief. Furthermore, I believe we have good reason to accept the pragmatist theory of belief. Whilst one could object to Peirce that the hypothesis of reality is not certainly true, Peirce would not be swayed by such sceptical doubts, and he gives us positive reasons to reject them.

1 Introduction

In *The Fixation of Belief*, Peirce looks at four methods of forming belief: the method of tenacity, the method of authority, the a priori method, and the method of science. I argue that if one accepts the pragmatist theory of belief, then Peirce is correct that the method of science is the only way to fix belief. By 'fixing belief' Peirce means forming beliefs that will be held permanently. This essay can be divided into two main parts. In part 1, I shall explain what the first three methods of forming belief are, and why Peirce claims they cannot fix belief. I then explain how Peirce's criticisms of these three methods allow us to see what he takes the method of science to be, and how it enables him to argue that the method of science is the only way to fix belief. In part 2, I look at objections to Peirce's argument. Firstly, I pose an objection by Murphey from his book *The Development of Peirce's Philosophy* who argues that these other methods could fix belief. I respond with Misak's argument that whilst Peirce's argument is unsatisfactory, he is still right to hold that these methods cannot fix belief because their products are not genuine beliefs. I then pose an objection to Misak's argument, but argue that this fails if one adopts the pragmatist theory of belief. Furthermore, I argue that the pragmatist theory of belief is attractive. Finally, I pose two more objections to Peirce and respond to each of these.

2 Part 1

2.1 Why the first three methods cannot fix belief according to Peirce

The first method of forming beliefs that Peirce considers is the method of tenacity. This is the method of accepting any beliefs that one chooses, and rejecting beliefs that are inconsistent with them, or not acting in ways that may sway them. Peirce says that by adopting this method, one is like an ostrich who buries its head in the sand in the face of danger. He uses the example of deciding not to read a particular newspaper in case it changes one's opinion on particular issues (Peirce, 1877, pp248-249). Peirce argues that this method could not fix belief because the 'social impulse' is against it, meaning that those who adopt it will see that others in society have contrary beliefs to them and that these contrary beliefs are just as good as theirs. This will cause them to doubt their beliefs (Peirce, 1877, p250).

The second method that Peirce considers is the method of authority. This is the method of the state, or those in power, imposing beliefs on society and preventing them from holding contrary beliefs, either by force, indoctrination or by keeping them ignorant (Peirce, 1877, p250). Peirce argues that this method could not fix belief because members of society will 'possess a wider sort of social feeling' (Peirce, 1877, p251). He argues that members of one society will notice that members of another society hold contrary beliefs to theirs, and like with the method of tenacity, will become aware that their beliefs are not superior (Peirce, 1877, pp250-251). They will therefore doubt their beliefs.

The third method for forming beliefs that Peirce considers is the a priori method. Beliefs formed by this method are formed because people find them reasonable (Peirce, 1877, p252). An example would be the belief that it is always wrong to kill another human. Whilst this belief has not been formed from observation from the external world, people are inclined to believe that it is true. Another example is Spinoza's metaphysical claim that since god is infinite, only one substance can exist (Spinoza, 2005, p9). Peirce argues that this method could not fix belief because what is agreeable to reason is a matter of taste. Metaphysicians dispute over their beliefs, and metaphysical beliefs that were once popular become unattractive (Peirce, 1877, p253). Misak argues that this method simply forms beliefs that are internally consistent (Misak, 2004, p63), and which could therefore be inconsistent with experience. This is problematic because my internally consistent beliefs could be inconsistent with your internally consistent beliefs. As with the other methods, I will see that my beliefs are no better than others' beliefs, and will therefore start to doubt my beliefs.

2.2 The Method of Science according to Peirce, and his argument for why it is the only way to fix belief

Peirce's criticisms of the above methods allow one to see what he takes the method of science to be (Hookway, 1985, p46). The problem with these three methods is that they

produce beliefs that have solely human causes and depend on our thinking alone. Beliefs formed by the methods of tenacity and authority are determined by the will of an individual or group (Hookway, 1985, p46), and the a priori method forms beliefs that people deem reasonable. We saw that Peirce saw this as problematic because people differ in their beliefs, and once people are made aware of this difference in opinion, they will start to question their beliefs. Peirce argues that in order to fix belief, we therefore need a method of forming beliefs that uses “some external permanency” as its judge (Peirce, 1877, p254) and hence, does not depend on our thinking. Such a method, because it does not depend on the arbitrariness of human opinion would allow people to form the same beliefs. There would be no social impulse against such a method and therefore, the method would allow beliefs to be fixed permanently.

Peirce argues that the method of science is such a method. This is because it uses the *hypothesis of reality* as its basis. This is the hypothesis that there are real things, independent of human opinion (Peirce, 1877, p255). The first three methods are therefore inconsistent with this hypothesis - they do not form beliefs independent of human opinion, regarding how the world really is. One who uses the method of science uses the external world and experience as its judge, and forms and changes one’s beliefs accordingly. For example, suppose I have only ever experienced red apples. Using experience as the judge of my beliefs, I form the belief that apples are red. One day however I experience a green apple. Since I use the external world and experience as my judge, I am caused to reject my previous belief that all apples are red.

The method of science can therefore be defined as the method of forming beliefs that uses the hypothesis of reality as its basis. It produces beliefs that are formed and tested by the external world and experience. Peirce argues that this means the method produces beliefs that are independent of human opinion, and can therefore fix belief. The argument can be laid out formally as follows:

- P1) If the hypothesis of reality is true, then only a method of forming beliefs that is consistent with it will fix belief.¹
- P2) The hypothesis of reality is true.
- C1) Therefore, only a method of forming belief that is consistent with the hypothesis of reality will fix belief.
- P3) The method of science is the only method of forming beliefs that is consistent with the hypothesis of reality.
- C2) Therefore only the method of science will fix belief.

The argument is valid. To attack the argument, one would therefore have to argue against one or more of the premises. From the above discussion, it would be difficult to argue against premise three. The method of science, as Peirce describes it, is the only method that uses the external world to form and change beliefs. If we are to refer to the method of science as Peirce describes it, premise three therefore seems true. For the purpose of this essay, I will assume that Peirce’s description of the scientific method is

¹ Premise one is important to Peirce because his argument relies on the hypothesis of reality being true. It would be problematic for Peirce if there was no external world, since the method of science uses it to form beliefs. Suppose that the hypothesis of reality is false. Then the method of science would be subject to the same criticisms as the other methods of forming belief (they use human opinion as the judge of our beliefs, and not an external reality).

correct. If this is assumed, one can therefore only attack Peirce's argument by arguing against premise one or two.

3 Part 2

3.1 Objection to premise one- Murphey

An objection to premise one is that it does seem possible for methods that are inconsistent with the hypothesis of reality to fix belief. This is especially clear with the method of authority when imagining hypothetical cases. Suppose that the method of authority was adopted, and that we live in a world where everyone is governed by one authority. Using Peirce's reasoning, no one would doubt their beliefs. Peirce argues that the method of authority would cause people to doubt their beliefs when they notice that people under other authorities hold beliefs that are inconsistent with theirs, but if there were no other authorities, people would not come across such beliefs. Murphy argues that a completely authoritarian state does seem a real possibility (Murphey, 1993 p164).

Suppose however that a completely authoritarian state is impossible. There is another problem which suggests that any of the three methods could fix belief. Misak argues that in arguing that these three methods could not fix belief, Peirce seems to be using the psychological hypothesis 'If an inquirer believes H, and notices that other inquirers believe not -H, that first inquirer will doubt H' (Misak, 2004, p54). In other words, he seems to assume that when one is made aware that someone else has a belief that is inconsistent with one of theirs, one will doubt their belief. This however is false. Suppose I have been working on an arithmetic problem, and after considering all options, form the belief that the correct answer is X. My friend however, working on the same problem tells me she believes the correct answer is Y. This will not necessarily cause me to doubt my belief that the correct answer is X. Furthermore, if Peirce is to take the method of authority seriously, he should hold that the psychological principle will not always hold. This is because a particular authority could force the following doctrine on its people: 'Any belief that is contrary to what we teach you is false'. People in this society would not be swayed by contrary beliefs to theirs, because they will deem such beliefs to be false (Misak, 2004, p58).

Misak however offers a defence of Peirce's claim that these methods do not fix belief, which does not rely on the psychological hypothesis. She argues that whilst these three methods may fix some mental state (shown by Murphey's criticism of Peirce above), they cannot fix belief, because what they produce are not genuine beliefs. She argues that this is because genuine beliefs must be sensitive to evidence, and what these three methods produce are not sensitive to evidence (Misak, 2004, p59). The aim of the first two methods is for people to acquire a *predetermined* mental state (Misak, 2004, p59). With the method of tenacity, one arbitrarily holds onto beliefs even when faced with contrary evidence. With the method of authority, people acquire mental states that they are told to, or forced to acquire. The method of authority therefore seems akin to brainwashing (Misak, 2004, p59), and one could argue that it would be inappropriate to call a mental state that has been acquired by force, a belief. Whilst the aim of the a

priori method is not for people to acquire predetermined mental states, it only forms beliefs that are internally consistent (Misak, 2004, p63). As Peirce argues, when people adopt this method they are simply acquiring mental states that are “in harmony with their system”(Peirce, 1877, p273), as opposed to acquiring beliefs that are formed from experience, and are consistent with how things really are in the external world. Therefore, whilst Peirce’s argument for why these three methods could not fix belief appears to rely on a false psychological hypothesis, one could argue that beliefs have to be sensitive to evidence, and since these three methods do not form beliefs that are sensitive to evidence, they cannot fix belief, but only mental states.

An objection to Misak is that beliefs are simply propositional attitudes. It is however not necessary that propositional attitudes have to be sensitive to evidence. To have a propositional attitude is simply to have a mental state about a proposition (Schwitzgebel, 2006), for example, ‘all grass is green’. Suppose for example I believe that this proposition is true, and that I continue to believe this even after I experience some grass that is blue. Whilst it might be strange if my propositional attitude about the proposition ‘all grass is green’ did not change after I experience an instance of some blue grass, my propositional attitude would still be a propositional attitude - I would still have a mental state about a proposition. With brainwashing, one could argue that whilst the brainwashed person has not formed particular mental states in a good way, these mental states are still beliefs. One could therefore argue that Misak should differentiate between beliefs formed by good methods and beliefs formed by bad methods: Methods of forming belief that are sensitive to evidence are good methods of forming belief, whilst those that are not are bad methods of forming beliefs. We can therefore call the methods that are inconsistent with the hypothesis of reality, and are therefore not sensitive to evidence, bad methods of forming beliefs. What they produce are however still beliefs.

One can however make sense of the claim that beliefs must be sensitive to evidence if one accepts the pragmatist theory of belief. William James argues that beliefs are rules for action (James, 1975, p259), and that to believe X is to take a certain set of indicative conditionals to be true (PHI320, Lecture 1 on Pragmatism). In other words, to believe something is simply to hold that other statements of the form ‘If A then B’ are true. Suppose for example I believe that a particular piece of clay is soft. To believe this is to hold other statements such as ‘If I squeeze this piece of clay in my hand, it will change shape, and ‘If I drop this piece of clay on the floor, it will not bounce’. These indicative conditionals are however hypotheses that can only be tested by experience.- to know whether it is true that the a piece of clay in my hand will change shape if I squeeze it, I will have to squeeze it in my hand. These subjunctive conditionals are therefore sensitive to evidence. Suppose I hold that the piece of clay will change shape in my hand if I squeeze it, but when I try to squeeze shape, it does not change shape. This would cause me to change my belief that a particular piece of clay is soft. Since adopting the pragmatist theory of belief is therefore to accept that beliefs are hypotheses about what would happen if one was to do tests in experience, if the pragmatist theory of belief is correct, then beliefs do have to be sensitive to evidence. Misak’s claim that these three methods do not form genuine beliefs would therefore be correct.

Furthermore, the pragmatist theory of belief is more attractive than the propositional attitude account. If one adopts the propositional attitude account, then holding a mental attitude about a proposition that goes against experience would still count as a belief. It would however be strange if one held such a mental attitude, and such mental

attitudes do not seem to be the sort of things we would want to call beliefs. At best, the proponent of the propositional attitude account would have to say that it would be strange if one was to adopt such a belief. The proponent of the pragmatist theory of belief does not however have to say such a thing. They can simply say that since one's mental attitude is not sensitive to experience, it is not a belief at all.

3.2 Objection to premise one- Why assume that just because a method of forming belief is consistent with the hypothesis of reality, it can fix belief?

It is possible to object to premise one in another way. One could instead try to argue that it does not necessarily follow that if the hypothesis of reality is true, then a method of forming beliefs that is consistent with it could fix belief. Take the method of science which, as I have already shown is the only method that is consistent with the hypothesis of reality. It is possible for people to use this method but still differ in the beliefs they form. Two people can observe the same object in the external world, form beliefs accordingly from this observation, but still form different beliefs from one another about the object. Suppose after seeing an object in the distance, I form the belief that it is a large animal. My friend however after seeing the object, forms the belief that the object is a small house. After becoming aware that we have different beliefs, we may start to doubt our own belief about the object. We will realise that our beliefs have been formed from the same observation and that our own belief is therefore no better than the other person's belief. Therefore, even a method of forming beliefs that uses the external world to form beliefs can still cause people to differ in their beliefs. Since such a method can cause people to differ in their beliefs, it is therefore questionable whether it could fix belief.

One can however respond that Peirce is not arguing that a method of forming beliefs that is consistent with the hypothesis of reality will *always* fix belief. He is simply arguing that such a method *can permanently* fix belief. Just because a method of forming beliefs does not always fix belief, it does not follow that it cannot fix belief. Furthermore, we have good reason to believe that a method that is consistent with the hypothesis of reality can fix belief. This is because of the compulsive nature of experience (Misak, 2004, p84). It forces itself upon us. When I see an object in the distance, I do not decide to form the belief that there is an object in the distance. Rather, experience forces me to believe this. Furthermore, experience seems to force itself onto people in similar ways. Take the example above. At a distance, my friend and I form different beliefs about what the particular object is. If we were to get nearer to the object, our beliefs would however cohere. As we experience the object more, we will see that the object is either, a large animal, a big house, or neither. Therefore, whilst a method of forming beliefs that is consistent with the hypothesis of reality will not always cause people to form the same beliefs, there is good reason to believe that it can, and does cause people to form the same beliefs, and therefore can fix belief.

3.3 Objection to premise two

One could try to object to premise two by arguing that we can never know whether the hypothesis of reality is true. It may be the case that there is no external world. If this

was the case, there would be no way that the world really is, and no facts independent of human opinion. There would therefore be no independent, external judge of our beliefs. It would then follow, according to Peirce's own physiological hypothesis that none of the methods, including the method of science could fix belief. Whilst I have argued that this psychological hypothesis is false, since Peirce adheres to it, if there were no external world, he would have to accept that the method of science could not fix belief.

Peirce however responds to this objection. He argues that the fact that we doubt our beliefs at all presupposes that there is an external world. He argues that when we are in a state of doubt, we are dissatisfied because we feel that there is one true way that reality really is, but are unsure of what this is. As Peirce says, "when in a state of doubt, there 'is vague concession that there is some one thing to which a proposition should conform" (Peirce, 1877, p254). If we did not already believe that there is a way the world really is, it would be difficult to see why we are ever in a state of doubt.

One may however argue that whilst the fact that we doubt presupposes that there is a human-independent world, it could be the case that the world we experience is not in fact how the world actually is.

There are two responses to this. Firstly, if there is such an illusion, this would be unproblematic for fixing belief, because as said in the above section, experience seems to force itself upon people in similar ways. Secondly, Peirce does not believe that doubts about the existence of the external world, or doubts about how the external world really is, are real doubts. He argues for the doctrine of *critical commonsensism*, (CP.5, 1934, 498) which is the doctrine that one should not doubt beliefs that one has no positive reason to doubt, or beliefs that one already finds compelling. He argues that such scepticism is absurd. They are what he calls paper doubts (Misak, 2004, p50). It does not seem possible for one to truly doubt the existence, or the true nature of the external world since there is no positive reason to have such doubts, and we cannot stop acting as if the external world exists, or its appearance is not an illusion. Furthermore, if we doubted all our beliefs, we could not form any beliefs. This is because a precondition of forming beliefs is having a stock of beliefs that one does not doubt (Misak, 2004, p50). We therefore have to accept that the external world exists if we are to form any beliefs at all. Both of these replies make it reasonable for Peirce to hold that the external world does exist, and that it exists in the way we experience it.

4 Conclusion

In conclusion, the method of science according to Peirce can be described as the method of forming beliefs that is consistent with the hypothesis of reality. Those who adopt this method use experience and the external world to form and change their beliefs when they are in conflict with observations from the external world. I have argued that whilst Peirce's argument for why the method of tenacity, the method of authority, and the a priori method cannot fix belief seems to be based on a psychological hypothesis that is in fact false, there is a way to make his claim that these three methods cannot fix belief, plausible. This is by arguing, as Misak does, that beliefs must be sensitive to evidence.

Beliefs formed by these three methods are not sensitive to evidence, and therefore do not form beliefs at all. I argued that Misak's claim is made plausible if one adopts the pragmatist theory of belief, and that the pragmatist theory of belief is attractive. I considered the objection that just because the method of science is the only method of forming belief that is consistent with the hypothesis of reality, this does not mean that it could fix belief. I responded that this does seem to be the case, considering the compulsive nature of experience which seems to affect people in similar ways. Lastly, I considered the objection that the hypothesis of reality is false. I responded that the fact that we doubt at all presupposes that this hypothesis is true, and that such sceptical doubts, according to Peirce are not real doubts since there is no positive reason to doubt them.

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